SCOPE FREEZING AND OBJECT SHIFT IN UKRAINIAN:

DOES SUPERIORITY MATTER?[*]

Bruening (2001) presents an analysis of scope freezing in double object constructions that draws on mechanisms proposed by Chomsky (2001) to handle Object Shift in Germanic languages. In this remark, we evaluate the suitability of Bruening's (2001) account for Ukrainian, a language that shows both scope freezing in Double Object Constructions and the *with*-variant of the *Spray-Load* alternation as well as specificity-related Object Shift. We present data from Ukrainian *Spray-Load* verbs in their interaction with Object Shift and show that the Superiority account does not extend easily to such languages. Furthermore, we argue that the data patterns observed are best accounted for in the Cyclic Linearization framework of Fox & Pesetsky (2005), with observable cross-linguistic differences in the properties of Ukrainian and Scandinavian Object Shift then following naturally without any additional stipulations.

Key words: *Scope Freezing, Superiority, Specificity, Object Shift, Spray-Load verbs, Cyclic Linearization, Ukrainian.*

1 The Superiority Account of Scope Freezing

Bruening (2001) draws parallels between the covert movement operation, Quantifier Raising (QR), and Object Shift (OS) found in Germanic languages. Chomsky (2001) analyzes OS as being driven by a formal feature "P" that is optionally present on the light verb *v* that attracts a DP to *v*P. Bruening exploits the observation that both OS in Germanic languages and QR in English have interpretive effects and proposes that the P feature can be parameterized: <u>in languages that allow OS the P feature is employed to attract a **specific** DP to *v*P (a DP</u>

bearing a feature [+specific]) while in English (and other languages that do not have OS) it is parameterized to attract a **quantificational** DP (any non-individual denoting DP, henceforth QP) to *v*P at Logical Form (LF). Given this proposal, when the English light verb *v* carries the optional P feature, a QP will be attracted to little *v* via QR; if the *v* head lacks the P feature, QR will not apply, causing the derivation to crash if the QP is uninterpretable in its base-generated position. If the two objects are in the domain of *v*, Superiority (Chomsky 1995, Richards 1997) restricts the LF scopal order of the two objects. Shortest Attract requires the indirect object in (1a), whose structure (on Bruening's assumptions) is illustrated in (1b), to undergo P-feature checking before the direct object does, and the direct object to 'tuck in' under the indirect object. For this reason, P-feature checking cannot invert the scope of the two objects, which blocks the bound reading of *different* in (1a). On Bruening's account this applies to object QPs but crucially not to QPs in subject position; subject QPs for Bruening do not have to raise to *v*P (due to being semantically interpretable in their base position as sister to the verb), hence the account predicts no competition between the subject and the object QPs with respect to Superiority, allowing an object to scope over the subject at LF. This analysis captures the fact that both objects may scope over the subject, but are fixed in their relative order with respect to each other.

(1)   a. The teacher gave a (#different) student every book.

        b. [vP the teacher [VP1 a (different) student V1 [VP2 gaveV2 every book]]]

The scope flexibility found in the prepositional counterpart to (1), shown in (2), is a consequence of the particular structure of prepositional constructions. Bruening claims that the Theme is generated in that case in the specifier of PP, which also includes the Goal. Since the two DPs originate in the same projection, they are equidistant from the P-feature, and either may move first, putting the other in its scope at LF.

(2)   a. The teacher gave a book to every student.

        b. [vP the teacher [VP gaveV [PP a book toP every student]]]

This analysis thus attributes scope freezing in the Double Object Construction in (1a) to the fact that the two objects are base generated in separate VPs.

2 Extending the Domain of Investigation: Novel Data from Ukrainian

In this section, we consider the consequences of Bruening's account for a language that shows both QR and OS. A straightforward way to interpret the predictions Bruening's account makes is that languages that allow OS will not also allow 'feature-driven' QR, thus predicting no Scope Freezing in configurations similar to the ones found in English. Since Bruening takes the optional P feature on little v to be parameterized across languages, in languages like English it is responsible for attracting QPs to vP, whereas in languages that allow OS, the P feature serves to attract the object to vP. Thus, the way the Superiority account is formulated in Bruening (2001) it seems to preclude the possibility of there being languages that exhibit both Scope Freezing <u>and</u> OS. Ukrainian, however, has been shown to display both Specificity-related Object Shift (Mykhaylyk 2010; 2011; 2012; Antonyuk-Yudina & Mykhaylyk 2013) as well as Scope Freezing in ditransitives and in the *with*-variant of the *Spray-Load* Construction (Antonyuk 2015a,b).

Object Shift in Ukrainian refers to movement of a direct object to a higher pre-verbal landing site (vP-edge) that has been claimed to have certain interpretative correlates, i.e., the loss of nonspecific readings (Biskup 2006, Chomsky 2001, Diesing & Jelenek 1993, Holmberg 1999, Thráinsson 2001). Such a semantic effect of object movement to preverbal position in Ukrainian is demonstrated in (3), where the adverb *dviči* (*twice*) marks the edge of the vP. In a context like this, *mjačyk* (*ball*) can only be understood as referring to a specific ball that is salient for the participants of the conversation.

(3) a. Divčynka   dviči kynula   mjačyk.

      girlNOM   twice threw   ballACC

      'The girl threw a (possibly different) ball twice.'

b. Divčynka   mjačyk   dviči   kynula.

girlNOM   ballACC   twice   threw

'The girl threw the/a certain ball twice.'

Similar effects have also been found with Ukrainian ditransitives (Mykhaylyk, Rodina & Anderssen 2013). Thus, in (4) below, the Object Shifted Goal argument must be interpreted as specific, confirmed by the fact that the Goal takes wide scope with respect to the adverb 'twice', so that in (4) the same girl must be involved in each act of book-giving:

(4)   Petryk   divčynci   dviči dav   knyhu.

PeterNOM   girlDAT   twice gave   bookACC

'Peter gave a certain girl some book or other on two occasions.'

As recent research demonstrates, in addition to allowing OS, Ukrainian shows scope ambiguity in monotransitive sentences as well as Scope Freezing in ditransitives and the *Spray-Load* alternation that is parallel to that found in English (Antonyuk 2015a,b), thus providing a testing ground for the afore-mentioned cross-linguistic predictions of the Superiority account of Scope Freezing.

2.1 Ukrainian *Spray-Load* Alternation

To demonstrate that the phenomenon of Scope Freezing in Ukrainian is the same as that known from English since Larson (1990), we will briefly discuss the Ukrainian *Spray-Load* construction, which similarly to the English Double Object Construction exhibits scope freezing on its *with*-variant (as first noted for English in Schneider-Zioga (1988)).[1]

First, consider the following examples from English (Kearns 2011: p.218-219):

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[1] A detailed discussion of the Russian *Spray-Load* construction that shows identical properties to the construction discussed here can be found in Partee (2005), Dudchuk (2006), and Sokolova, Lyashevskaya & Janda (2012), *i.a.*

(5)   a. Jones loaded [the hay] onto the truck

       #...and put the left-over hay in the barn.

        …and there was still room for the piano.

       b. Jones loaded [the truck] with the hay

       #...and there was still room for the piano.

        …and put the left-over hay in the barn.

The characteristic property of the *Spray-Load* alternation is the fact that in the two alternating orders either of the internal arguments can be realized as the direct object depending on the alternant (thus, *the hay* in (5a) vs. *the truck* in (5b); see Rappaport-Hovav & Levin 1985, 1988). The examples above also demonstrate another well-known property of the *Spray-Load* alternation, namely **the holism effect**, which consists in the direct object being interpreted as completely (or holistically) involved in the event, being totally "used up". Thus, in (5a), the hay is understood as being fully loaded onto the truck, with no leftover hay. In (5b), with *the truck* being the direct object, it is interpreted as being fully loaded with hay, so that there can be no space left for other objects to load. Kearns also discusses the sentences in (6), which demonstrate the key entailment relation that exists between the two alternants: i.e., the *with* variant is known to entail the other variant, but not vice versa:

(6)   a. Jones loaded the truck with hay *entails* Jones loaded hay onto the truck.

       b. Jones loaded the hay onto the truck *does not entail* Jones loaded the truck with hay.

Rappaport-Hovav & Levin (1988) analyze the *with*-variant as semantically more complex, containing the other variant, – hence the entailment relation. Note, however, that the *with* variant is the one which is also surface scope frozen (7b), suggesting that such sentences are the 'marked', more complex cases in an otherwise scope fluid language. This view is

consistent with the general conclusions in Bobaljik & Wurmbrand (2012), according to which scope freezing is a property of specific constructions, and not of languages as a whole.[2]

(7)   a. Jones loaded some hay on every truck. ($\exists > \forall$), ($\forall > \exists$)

         b. Jones loaded some truck with every type of hay. ($\exists > \forall$), *($\forall > \exists$)

Let us now take a look at the Ukrainian counterpart of the *Spray-Load* construction. The *Spray-Load* alternation is not as productive in Ukrainian as it is in English, but it is still possible to identify a number of verbs that clearly belong to this group.[3] The holistic effect

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[2] While this observation may seem trivial in view of the fact that the majority of doubly or multiply quantified sentences in English, for instance, are scopally ambiguous, with scope freezing in the language only observed in the Double Object Construction and the *with*-variant of the *Spray-Load* alternation, this is not the view taken in Bruening (2001), where scope freezing is the result of the *Shortest*- and Superiority-obeying feature-checking system he assumes, with scope ambiguity requiring a separate explanation in each case. See Larson et al. (2018) for a detailed discussion of this point.

[3] The group of such alternations in Ukrainian is in fact quite large if one includes predicates where the two alternants are realized with different verbal morphology (also shown in Sokolova et al. (2012) for Russian). The alternation in (i), for instance, is one such example: the two alternants correspond perfectly to their counterpart sentences in English, the only difference being that the Ukrainian verb for 'plant' must be realized with two different lexical prefixes, which allow for either one or the other internal argument of the verb to be realized as the direct object (see also Svenonius 2004 for the original observation on the argument-augmenting property of lexical prefixation in Russian):

(i) a. Myhajlo   vysadyv   dereva   v sadu.

        MichaelNOM   vy-planted   treesACC.PL   in gardenPREP

        'Michael planted trees in the garden.'

   b.   Myhailo   zasadyv   sad   derevamy.

associated with the direct object holds of the Ukrainian examples as well. In the sentences below, the direct object *pal'ne* 'gas' in (8a) and *bak* 'tank' in (8b) are interpreted as being fully "used up" in the event described; similarly, the entailment relation whereby the *with* variant entails the other alternant is observed for Ukrainian as well. Finally, the Ukrainian counterpart of the *with*-variant is also surface scope frozen (8d):

(8) a. Myhajlo   zalyv   pal'ne   v bak.   *does not entail (8b)*

        Michael   filled   gas_{ACC}   into tank_{GEN}

        'Michael filled gas into the tank.'

     b. Myhajlo   zalyv   bak   pal'nym.   *entails (8a)*

        Michael   filled   tank_{ACC}   gas_{INSTR}

        'Michael filled the tank with gas.'

     c. Myhajlo   zalyv   [jakyjs' vyd pal'noho]   [v kožen bak].

        Michael   filled   [some type]ACC gas-GEN   [PP into [every tank]GEN]

        'Michael filled some type of gas into every tank.' (∃>∀), (∀>∃)

     d. Myhajlo   zalyv   [jakyjs' bak]   [kožnym vydom pal'noho].

        Michael   filled   [some tank]ACC   [[every type]INSTR gasGEN]

        'Michael filled some tank with every type of gas.' (∃>∀), *(∀>∃)

These data show that the *Spray-Load* alternation in Ukrainian is identical to the English one in terms of its semantic and syntactic properties. Given this, it is not surprising that the scope freezing that is found in the *with*-variant of the *Spray-Load* construction in English is found in Ukrainian as well. Thus, the data above provide the basis for evaluating Bruening's (2001) account of scope freezing with respect to Ukrainian, having established that both languages,

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        Michael NOM   za-planted   garden_{ACC}   trees_{INSTR.PL}

        'Michael planted the garden with trees.'

These morphological differences aside, the alternation in (i) shows all the semantic and syntactic properties discussed in the main text regarding (8).

English and Ukrainian, show the phenomenon of scope freezing in identical syntactic contexts. We proceed to discuss how this construction interacts with OS.

As shown in (9) below, subjecting the higher direct object of the frozen *with*-variant of the Ukrainian *Spray-Load* construction to OS does not change available scope configurations, with the surface scope still being the only available interpretation. The direct object, however, is necessarily interpreted as specific now, which makes the lack of inverse scope even more strikingly obvious (9a). Subjecting both objects to OS, the sentence is still interpreted with frozen surface scope, but it also means that for some specific tank, Myhajlo poured every type of gas belonging to some salient or previously mentioned set into that tank, that is, *both* objects are necessarily interpreted as specific (9b).

(9) a. Myhajlo   [jakyjs' bak]   zalyv   [kožnym vydom pal'noho].

       Michael   some tank   filled   [[every type]INSTR gasACC]

       'Michael filled some specific tank with every type of gas.'   ($\exists > \forall$), *($\forall > \exists$)

   b. Myhajlo   [jakyjs' bak]   [kožnym vydom pal'noho]   zalyv.

       Michel   some tank   [[every type]INSTR gasACC]   filled

       'Michael filled some specific tank with every type of gas.'   ($\exists > \forall$), *($\forall > \exists$)

The semantics of the object(s) undergoing OS in Ukrainian is made even more precise by the use of the adverb *dviči* (twice), which marks the edge of the *v*P. In (9c,d), the OS entails wide scope of the object with respect to the adverb while the *in-situ* object is ambiguous: i.e., the object can take either narrow or wide scope with respect to the adverb.

(9) c. Myhajlo   [jakyjs' bak]   dviči zalyv   [kožnym vydom pal'noho].

       Michael   some tank   twice filled   [every type]INSTR gasACC]

       'Michael filled some specific tank on two occasions with every type of gas.'

       ($\exists$ > twice > $\forall$): There is a tank x such that Michael filled x on two occasions with every type of gas (that is, he mixed the different types of gas in x).

(∃ > ∀ > twice): There is a tank x such that for every type of gas y Michael filled x with y on two separate occasions (he didn't mix different types of gas).

d. Myhajlo   [jakyjs' bak]   [kožnym vydom pal'noho]   dviči   zalyv.

Michael   [some tank]   [every type]INSTR gasACC]   twice   filled

'Michael filled some specific tank with every type of gas twice.'

(∃ > ∀ > twice): There is a tank x, such that for every type of gas y, Michael filled x with y on two separate occasions (he didn't mix different types of gas).

(∃>twice>∀): no reading that asserts that Michael mixed the different types of gas.

3 Bruening's (2001) Account Applied to Ukrainian Data

In this section we attempt to provide an account of the Ukrainian data couched within Bruening's (2001) feature-checking system and show that it fails to explain the common patterns. The facts presented in section 2 indicate that Ukrainian behaves like a language with the Object Shift parameterized P on Bruening's account, that is, the feature P on *v*P is parameterized for Specificity rather than 'quantificationality' and applies optionally. This predicts that the lower object could undergo OS over the higher one if the higher one is not specific, and this is borne out:

(10) Mykhailo   jakymos' vydom pal'noho   zalyv   jakyjs' bak.   **IO V DO**

Michael   some type gasISNTR   filled   some tankACC

Lit: 'Michael some type of gas filled in some tank.'

However, the two objects can also occur in the inverted order before the verb, as in (11):

(11) Mykhailo   jakymos' vydom pal'noho   jakyjs' bak   zalyv. **IO DO V**

Michael   some type gasINSTR   some tankACC filled

Lit: 'Michael with some type of gas some tank filled.'

Bruening's account does not predict this. If OS is checking of a P feature parameterized for Specificity, then if both objects move, both must bear the Specificity feature. If feature-

checking is subject to Superiority, then we would expect the two moved objects to preserve their original word order. The example in (11) goes against this prediction.

On the other hand, the two objects in Ukrainian may also invert in the post-verbal field, with the order in (12a) being a permutation of the two QPs in (12b). We refer to this permutation as Argument Inversion (AI).

(12) a. Mykhailo   zalyv jakymos' vydom pal'noho   jakyjs' bak.   **V IO DO**

    Michael   filled some type gasINSTR   some tankACC

    Lit: 'Michael filled with some type of gas some tank.'

    b. Mykhailo   zalyv jakyjs' bak   jakymos' vydom pal'nogo.   **V DO IO**

    Michael   filled some tankACC   some type of gasINSTR

    Lit: 'Michael filled some tank with some type of gas.'

In light of (12), (11) might not represent inversion at all, but rather Superiority-respecting Specificity-feature checking derived from the already inverted order in (12a), which is itself derived via AI. If this is the case, and the quantifiers are inverted in the post-verbal field, OS in Ukrainian could be analyzed as Superiority-respecting P feature checking.

What is irreconcilable with Bruening's account, however, is the scope observed in such contexts. If P-feature checking observes Superiority, then OS should only exhibit the surface scope interpretation since any movement of two QPs will lock their scope: i.e., OS should correlate with scope freezing. However, the Ukrainian facts do not exemplify this generalization. Rather, they exemplify the generalization that <u>whatever scope interpretations are available in the post-verbal field carry over to the preverbal field.</u>

In (13b), which according to Bruening is the base order, scope is frozen in the surface order, just as it is in the English counterpart, which is consistent with Bruening's analysis. In the inverted order in (13a) both scopal interpretations are possible.[4]

(13) a. Mykhailo   zalyv jakymos' vydom pal'noho   kožen bak.   **V IO DO**

      Michael   filled some type gasINSTR   every tankACC

      Lit: 'Michael filled with some type of gas every tank.'   ($\exists > \forall$), ($\forall > \exists$)

   b. Mykhailo   zalyv jakyjs' bak   kožnym vydom pal'nogo.   **V DO IO**

      Michael   filled some tankACC   every type of gasINSTR

      Lit: 'Michael filled some tank with every type of gas.'   ($\exists > \forall$), *($\forall > \exists$)

Crucially, this pattern of scope interpretation persists under OS of one (14) or both (15) quantifiers. That is, OS neither disrupts scope freezing in the scopally frozen sentences nor induces scope freezing in the scopally ambiguous ones.

(14) a. Mykhailo   jakymos' vydom pal'noho   zalyv   kožen bak.   **IO V DO**

      Michael   some type gasINSTR   filled   every tankACC

      Lit: 'Michael with some type of gas filled every tank.'   ($\exists > \forall$), ($\forall > \exists$)

   b. Mykhailo   jakyjs' bak   zalyv   kožnym vydom pal'nogo.   **DO V IO**

      Michael   some tankACC filled   every type of gasINSTR

      Lit: 'Michael some tank filled with every type of gas.'   ($\exists > \forall$), *($\forall > \exists$)

(15) a. Mykhailo   jakymos' vydom pal'noho   kožen bak   zalyv. **IO DO V**

      Michael   some type gasINSTR   every tankACC filled

      Lit: 'Michael with some type of gas every tank filled.'   ($\exists > \forall$), ($\forall > \exists$)

   b. Mykhailo   jakyjs' bak   kožnym vydom pal'nogo zalyv.   **DO IO V**

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[4] Note that what permutes in (13a) is the two internal arguments while the order of quantificational determiners, $\exists > \forall$, is kept the same, so that we can continue to evaluate the possibility of inverse scope (see Pietroski & Hornstein 2002 for a detailed discussion).

Michael   some tankACC every type of gasINSTR filled

Lit: 'Michael some tank with every type of gas filled.'   (∃>∀), *(∀>∃)

Furthermore, the generalization that OS preserves the scope relations available in the VP before OS is applied holds for the locative frame of the *Spray-Load* alternation as well. The base structure in (16) feeds OS of one or both arguments, as shown in (17).

(16)   Myhajlo   zalyv   [jakyjs' vyd pal'noho]   [v kožen bak].

        Michael   filled   [some type]ACC gas-GEN   [PP into [every tank]GEN]

        'Michael filled some type of gas into every tank.'   (∃>∀), (∀>∃)

(17) a. Myhajlo   [jakyjs' vyd pal'noho]   zalyv   [v kožen bak].

        Michael   [some type]ACC gas-GEN   poured [PP into [every tank]GEN]

        'Michael some type of gas poured in every tank.'   (∃>∀), (∀>∃)

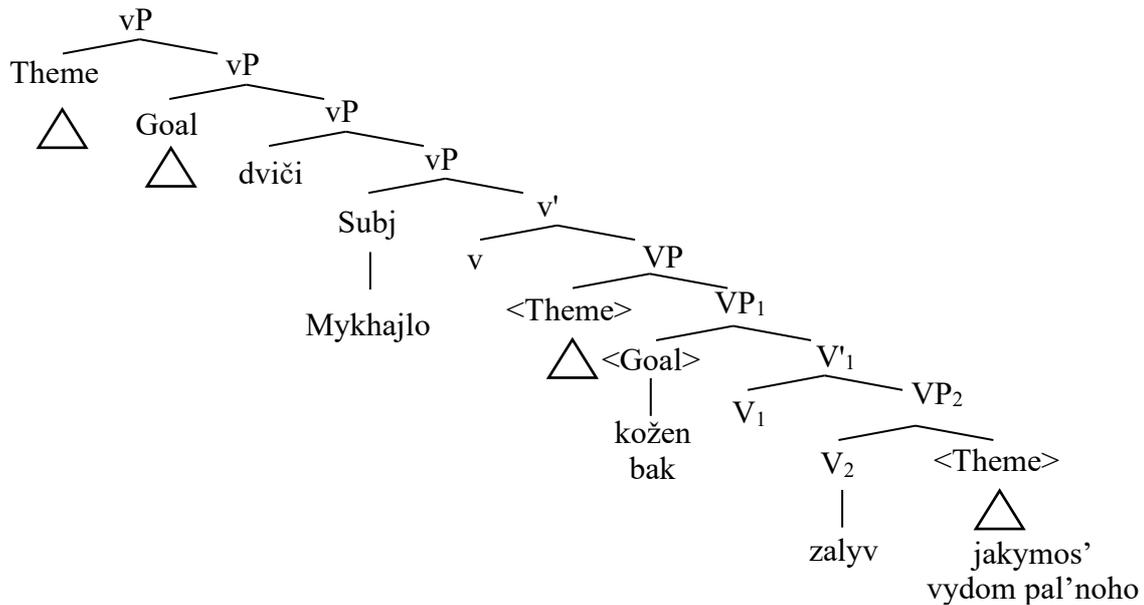   b. Myhajlo   [jakyjs' vyd pal'noho]   [v kožen bak]   zalyv.

        Michael   [some type]ACC gas-GEN   [PP into [every tank]GEN]   poured

        'Michael some type of gas in every tank poured.'   (∃>∀), (∀>∃)

The crucial cases for the evaluation of Bruening's analysis as applied to Ukrainian are the cases in (14a), (15a) and (17a-b). These are the cases in which scope is flexible in the post-verbal field and remains flexible in the preverbal field. Given the possibility of AI in the post-verbal field, the claim that OS is Superiority-respecting feature checking is compatible with the observed word orders, but predicts scope freezing in the OS orders that we do not observe. To see why this is the case, consider the *v*P fragment of the tree for (15a)[5]:

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[5] The tree, based on the structure proposed for the *Spray-Load* verbs in Bruening (2001), includes the adverb *dviči* (twice) to mark the *v*P edge even though it is not present in (15a).

(15a')

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                              vP
                    Theme          vP
                      △      Goal         vP
                              △    dviči        vP
                                          Subj         v'
                                           |      v          VP
                                       Mykhajlo  <Theme>          VP₁
                                                    △    <Goal>         VP₁
                                                            |     V'₁
                                                          kožen   V₁        VP₂
                                                           bak          V₂      <Theme>
                                                                         |         △
                                                                       zalyv   jakymos'
                                                                             vydom pal'noho
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Let us assume that AI involves adjunction of the Theme to VP1 in (15a') and that OS is P-feature checking on little *v* (for both objects), as illustrated in the tree. However, if P is responsible for determining the scopal order of the two objects, we expect OS of both arguments to lock in the scopal order that was found in the base order, yet this is not observed. What we observe instead is that OS and QR behave as independent processes.

4 Discussion

The new data presented above suggest that the original formulation of the Superiority account of Scope Freezing given in Bruening (2001) cannot account for the interaction of QP scope and Specificity-inducing OS in Ukrainian. Here we consider several different ways of salvaging the account.

One conspicuous way of explaining the Ukrainian OS seems to be to claim that this movement is of the kind that undergoes syntactic Reconstruction, thus accounting for the scope ambiguity. This might indeed seem like an attractive solution since the two QPs in

their object-shifted positions have the same scopal interpretation as they do in their post-verbal position, which is precisely what syntactic Reconstruction is generally assumed to be. However, this option is excluded for our data, given that Specificity-related OS is the kind of movement that affects interpretation, and we never see effects of its 'undoing'. That is, irrespective of whether the shifted QP has wide or narrow scope, once OS has applied, interpretation is affected accordingly. If Reconstruction were in principle possible, we would expect to find at least some cases where OS has applied yet its semantic correlate, i.e., the specific interpretation, is not found. Such cases are unattested, posing a significant challenge for a Reconstruction-based solution.[6]

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[6] Note that OS (a.k.a. Middle Object Scrambling) is distinct from Long-Distance Scrambling (e.g., movement to a pre-subject, sentence-initial position). While both types of movements have some interpretational correlates that link them to previous discourse, Long Distance Scrambling correlates primarily with information structure, topicality or aboutness, and OS is associated with specificity, definiteness or familiarity (see Mykhaylyk 2010, Bailyn 2012 *i.a.*). The relevant *syntactic* property setting apart these two phenomena is the ability to reconstruct. As shown in a number of studies on various languages with scrambling, unlike Long-Distance Scrambling, "short" Scrambling does not reconstruct (see more in Bailyn 2002, 2003, 2012, Diesing 1992, Bhatt & Anagnostopoulou 1996, Saito 1989, *i.a.*). Most relevantly, Bhatt & Anagnostopoulou (1996) discuss morphologically-marked Specificity-related OS in Hindi ditransitives, arguing that morphological marking of Specificity is insufficient and that overt movement of the object outside the VP is still required (in line with Diesing 1992). They show that this movement, argued to be short Scrambling, does not reconstruct (unlike Scrambling to a pre-subject, sentence-initial position, which does). These findings then are fully in line with our claims about the lack of Reconstruction for OS in Ukrainian.

Another possibility, raised by an anonymous reviewer, is suggested by the fact that overt QR and OS are known to target distinct landing sites in Icelandic (Svenonius 2000). Thus, the reviewer wonders if amending Bruening's account so that QR and OS target distinct landing positions would be a sufficient modification to ensure that the Superiority account can capture our data. While the above modification seems not only plausible, but indeed necessary in view of the fact that the landing sites of QR and OS are distinct in Ukrainian as well, with OS targeting a higher position (as indicated by the linear order of shifted objects with respect to quantificational adverbs, which shifted objects typically precede), it will not be sufficient. Crucially, as we show, it is the crossing of the two arguments via overt movement that yields scope freezing in Ukrainian. If the overtly raised QP (β) in the post-verbal field undergoes QR to vP, the other (previously higher object QP, α) will have to undergo QR in a tucking-in manner, preserving scope freezing (i.e., the order at LF remaining $\beta > \alpha$). The situation where Argument Inversion (AI) did not take place will yield the opposite order of QP-adjunction to vP upon QR (i.e., $\alpha > \beta$). Subsequent OS, if it is also Superiority-obeying, arguably applying to the output of QR which results in their attachment to vP, will attract the structurally higher QP to XP first, with the QP that was tucked in while adjoining to vP similarly tucking in when adjoining to XP. Thus, the order $\beta > \alpha$ will be preserved upon OS in the derivation that included the initial AI step. The derivation without AI that yielded the $\alpha > \beta$ order of QPs upon their QR to vP will, however, result in the ambiguity of $\alpha > \beta$ orders upon OS on the natural assumption that QPs adjoined to the same maximal projection are equidistant for the purposes of feature attraction. This will allow for either α or β to be attracted to XP first, with the other QP tucking in, thus accounting for the scope ambiguity of $\alpha > \beta$ orders under OS. Thus, the reviewer-suggested modification indeed seems to save the Superiority account of OS as far as the ambiguous orders are concerned. However, in doing so it underscores the vacuity of the Superiority explanation as far as scopally frozen orders are concerned, with the data patterns falling out if

and only if we admit that it is the overt instance of QP/AI in the post-verbal field that results in frozen scope relations between the two internal argument QPs. Once this step is granted, the rest follows rather naturally.

Crucially, the AI step that results in scope freezing is *not* itself Superiority-obeying, which relates to another important question, raised by the same reviewer, namely the motivation for AI. This step would be in conformity with Bruening's Superiority account if it were motivated by the need to make the structure antisymmetric, thus allowing for the previously lower QP to be attracted by the P feature of *v* first (Moro 2000, Chomsky 2013). Note, however, that this is decidedly not the case: if AI results in adjunction of β to VP1 as hypothesized earlier (which is also the maximal projection hosting α), the two internal arguments end up being equidistant, which for Bruening would always result in scope ambiguity – the opposite of what we find in Ukrainian sentences in which the AI step has taken place. It is worth underscoring the crucial distinction between our accounts: on the present account, scope freezing is a derivational phenomenon, resulting from the VP-internal inversion of quantificational internal arguments; for Bruening, scope freezing is a base-generated phenomenon resulting from the antisymmetric structure he posits for the Double Object Construction and the *with*-variant of the *Spray-Load* alternation. Thus, if our account is on the right track, it implicates the derivational nature of scopally frozen structures, first proposed for English in Larson (1988, 1990, updated in Larson 2014) (see also Hallman 2015 and Hallman 2018 for a reverse-Larsonian derivational analysis of the Double Object Construction in English and Syrian Arabic respectively).

Yet another approach to the conundrum the Ukrainian data present is to simply divorce OS from QR. On this view, only QR is taken to be regulated by a Superiority-obeying feature checking, with OS taken to be an optional movement that is not feature-driven. To the extent that scope freezing is seen as being due to the Superiority effects with QR and given that OS in Ukrainian behaves in ways not predicted by the Superiority account,

this move may seem justified in that it would put the data presented here outside the scope of what the feature-checking account of scope freezing would need to account for. Note, however, that along with the disadvantage of undoing a conceptually attractive feature of Bruening's account, namely disposing with non-feature-driven movement,[7] this move poses the serious additional problem of being empirically inadequate. Consider the data again.

(16) a. Myhajlo   dviči zalyv   [jakyjs' vyd pal'noho]   [v kožen bak].

      Michael   twice filled   [some type]ACC gas-GEN   [PP into [every tank]GEN]

      'Michael filled some type of gas into every tank twice.' ($\exists > \forall$), ($\forall > \exists$)

    b. Myhajlo   dviči zalyv   [jakyjs' bak]   [kožnym vydom pal'noho].

      Michael   twice filled   [some tank]ACC   [[every type]INSTR gasGEN]

      'Michael filled some tank with every type of gas twice.' ($\exists > \forall$), *($\forall > \exists$)

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[7] Note that while earlier Minimalist accounts viewed non-feature-driven, optional instances of syntactic movement as problematic (on the assumption that movement is costly and therefore must be *motivated*), thus providing primary motivation for Bruening (2001), this is no longer the case in the more recent instantiations of Minimalism (see, e.g., Moro 2000, Chomsky 2013, Boeckx 2014, Chomsky, Gallego & Ott to appear for discussions of this point). Thus, while the Ukrainian data discussed above would appear to present an outstanding problem for any Minimalist account that views non-feature-driven movement as something to be done away with, our data are entirely compatible with such recent views on movement (Internal Merge in Chomsky's 2013 terminology), according to which both Internal and External Merge apply freely. We are grateful to an anonymous reviewer for a helpful discussion of this point.

The *Spray-Load* alternation in (16) repeats the data from (8), demonstrating the familiar QP scope ambiguity-scope freezing pattern. All movement possibilities for (16a) are explored in (17), while (18) shows all options available for (16b)[8].

(17) a. Myhajlo   dviči zalyv   [jakyjs' vyd pal'noho]   [v kožen bak].

    Michael   twice filled   [some type]ACC gas-GEN   [PP into [every tank]GEN]

    'Michael filled some type of gas into every tank twice.'   (∃>∀), (∀>∃)

  b. Myhajlo   dviči zalyv   [v jakyjs' bak] [kožen vyd pal'noho].

    Michael   twice filled   [in some tank] [every type gas]

Lit: 'Michael filled in some tank every type of gas twice'   (∃>∀), *(∀>∃)

  a'. Myhajlo   [jakyjs' vyd pal'noho] dviči   zalyv   [v kožen bak].

    Michael   [some type]ACC gas-GEN twice   filled   [PP into [every tank]GEN]

Lit: 'Michael some type of gas filled in every tank.'   (∃>∀), ?(∀>∃)

  a''. Myhajlo [jakyjs' vyd pal'noho]   [v kožen bak] dviči   zalyv.

    Michael [some type]ACC gas-GEN   [PP into [every tank]GEN]twice   filled

Lit: 'Michael some type of gas poured in every tank on two occasions.'   (∃>∀), (∀>∃)

  b'. Myhajlo   [v jakyjs' bak]   dviči zalyv   [kožen vyd pal'noho].

    Michael   [in some tank]   twice filled   [every type gas]

Lit: 'Michael in some tank poured every type of gas on two occasions.'   (∃>∀), *(∀>∃)

  b''. Myhajlo   [v jakyjs' bak] [kožen vyd pal'noho] dviči zalyv.

    Michael   [in some tank] [every type gas]   twice filled   (∃>∀), *(∀>∃)

(18) a. Myhajlo   dviči zalyv   [jakyjs' bak]   [kožnym vydom pal'noho].

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[8] All the sentences in (16)-(18) contain the adverbial quantifier *dviči* (twice) to mark the left edge of *v*P as well as to remind the reader that a QP that occurs to the left of the adverb will always necessarily scope above the adverb, while a QP to the right of the adverb will be ambiguous with respect to it.

| Michael | twice filled | [some tank]ACC | [[every type]INSTR gasGEN] |

‘Michael filled some tank with every type of gas twice.’   (∃>∀), *(∀>∃)

     b. Myhajlo   dviči zalyv   [jakymos' vydom pal'noho']   [kožen bak]

        Michael   twice filled   [some type of gas]INSTR   [every tank]ACC

        ‘Michael filled some tank with every type of gas twice.’   (∃>∀), (∀>∃)

    a’. Myhajlo   [jakyjs' bak]   dviči zalyv   [kožnym vydom pal'noho].

       Michael   [some tank]ACC twice filled   [[every type]INSTR gasGEN]

Lit: ‘Michael some tank filled with every type of gas on two occasions.’   (∃>∀), *(∀>∃)

    a’’. Myhajlo   [jakyjs' bak]   [kožnym vydom pal'noho]   dviči zalyv.

        Michael   [some tank]ACC [[every type]INSTR gasGEN] twice filled (∃>∀),*(∀>∃)

    b’. Myhajlo   [jakymos' vydom pal'noho'] dviči zalyv   [kožen bak]

        Michael   [some type of gas]INSTR   twice filled   [every tank]ACC

Lit: ‘Michael with some type of gas filled every tank on two occasions.’   (∃>∀), ?(∀>∃)

    b’’. Myhajlo   [jakymos' vydom pal'noho'] [kožen bak]   dviči zalyv

        Michael   [some type of gas]INSTR   [every tank]ACC twice filled

Lit: ‘Michael with some particular type of gas filled every tank on two occasions.’(∃>∀), (∀>∃)

Presented this way, several important points in the data become immediately obvious. First of all, for each of the "alternating" sentences in (16) there is in fact <u>a true alternant</u>, produced by overtly permuting internal arguments of the base sentence in (17a) and (18a). The scopally ambiguous sentence in (17a) has a scopally frozen alternant in (17b), while its scopally frozen "*with*-variant" in (18a) actually has its own scopally ambiguous counterpart in (18b). The two alternating pairs in (17a-b) and (18a-b) make it perfectly clear that the *Spray-Load* "alternation" in (16) is in fact not an alternation in the derivational sense of the word, with each sentence in (16) having its own derivational counterpart. We contend that (17a)<(17b) represents the directionality of the derivation, with the scopally frozen sentence

19

in (17b) being derived via an instance of overt movement (what we have been referring to as AI) from (17a). The sentence in (16b)/(18a) then is not derived from (16b), but from the scopally ambiguous, base-generated order in (18b). Focusing now on the remaining sentences in (17) for a moment, it becomes clear that for either of the postverbal objects in (17a) or (17b) there is a derivation in which that object precedes and c-commands the other one, which we claim is precisely what allows either one or the other object to undergo OS, either by itself, or followed by the other object QP. Consider this state of affairs: the object-shifted sentences in (17a') and (17a'') are derived from the order in (17a), while the sentences in (17b') and (17b'') are derived from (17b). What this means is that OS in Ukrainian takes place in a fully Superiority-obeying fashion, with AI ensuring that a structurally lower object is at the left edge of VP where it can be attracted by the P feature of *v* first (with the other object then being able to undergo OS as well, necessarily tucking in below the object that shifted first). The derivation of (17b''), for instance, can be represented schematically as follows (irrelevant details omitted):

(19) a. Myhajlo   [v jakyjs' bak] [kožen vyd pal'noho]   dviči zalyv.

     Michael   [in some tank]PP [every type gas]ACC   twice filled

   b. [vP   OPP   OACC [vP twice [vP v+V [VP2 ~~OPP~~ [VP2 ~~OACC~~ ~~V~~ [VP1 ~~V~~ ~~OPP~~

]]]]]]

As shown in (19b), the prepositional object (indicated schematically as OPP) is base-generated in the structurally lowest position, as complement to the lexical verb. It then undergoes AI to a position preceding (and c-commanding) the Accusative-marked object (OACC) at the left edge of VP2. Being in this position at the left edge of VP is what allows for the inverted object OPP to be visible to the P feature of little *v*, thus undergoing OS to a position to the left of the quantificational adverb. The direct object OACC can now be attracted by the P feature of *v* as well, tucking in below OPP. It is thus very clear at this point that Ukrainian OS is a well-behaved, Superiority-obeying movement, thus making it

impossible to maintain that QR, but not OS, is regulated by the P feature of v.[9] The fact that OS is after all a Superiority-obeying movement thus poses a real challenge for the Superiority account of scope freezing. To remind the reader, the problem posed by the Ukrainian OS data is created by the falsified prediction regarding the QP scope: if OS of quantificational objects is Superiority-obeying, then the moment the higher of the two QP objects undergoes OS, scope should become frozen. And since the lower of the two objects would have to tuck in below if it, too, were to undergo OS, we predict that scope would continue to be frozen. Yet, as we have seen with (17) and (18), this is not what we find: instead, our data exemplify the generalization that OS preserves scope relations that were established in the post-verbal field, with scopally ambiguous sentences (17a, 18b) remaining scopally ambiguous post-OS (17a', 17a'', 18b', 18b'') and scopally frozen sentences (17b, 18a) similarly remaining scope frozen post-OS (17b', 17b'', 18a', 18a''). Also damaging to an attempt to capture scope freezing patterns with Superiority is the observation that although patterning together up to a point, scope and specificity actually diverge, with the lower of the two shifted objects in (17b'') and (18a'') being necessarily interpreted as specific while remaining surface scope frozen. We take the latter fact as yet another indication that OS and QR are *not* regulated by the same

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[9] Note that similarly to Russian, Superiority effects of the kind found with English wh-movement are not found in Ukrainian. We follow Scott (2012) who analyzes Russian as a 'true' wh-movement language, with a strong [+wh] feature on each wh-phrase, forcing it to be in Spec,CP. Crucially, Scott proposes that the effects of Superiority are masked in many contexts in Russian by the presence of a High Operator Phrase Position (HopP) to which any wh-phrase can raise overtly. Thus, although initial movement of Russian wh's to CP-spec is always Superiority preserving, in contexts where HopP is available a further movement of the interior wh-phrases becomes possible, yielding a surface order that appears to violate Superiority. This position is thus fully compatible with (indeed, strengthened by) our findings on observable and inviolable Superiority effects with OS.

mechanism.

5 Towards an Account of Ukrainian OS and its Interactions with Quantification

The exposition in (17)-(18) above provides an alternative way of making sense of the data without any reference to Superiority for either OS *or* QR. Fox & Pesetsky (2005) argue that syntactic structure is constrained by a linearization requirement at the heart of which is phonology's need to avoid ordering contradictions at each Spell-out domain, with DP, VP and CP taken to be the relevant domains. A variety of phenomena, from the successive-cyclic nature of wh-movement to Scandinavian OS and Quantifier Movement as well as Japanese and Korean Scrambling (following Ko 2004) being argued to follow from the linearization requirements. Thus, the restrictions on Scandinavian OS known as *Holmberg's Generalization* (i.e., the impossibility of OS unless the verb has moved out of the VP, as well as blocking effects with other overt intervening material) are argued to follow from the Order Preservation requirements, on the assumption that the Spell-out operation establishes an ordering statement for each Spell-out domain D. Leftward movement (in a head-initial language) through the left edge of D provides a way for an element X in D to move into a higher Spell-out domain without creating an ordering contradiction upon Spell-out. Fox & Pesetsky argue that the details of Scandinavian OS, including (but not limited to) *Holmberg's Generalization* follow naturally from their proposal on one key assumption, namely that Scandinavian OS (unlike successive-cyclic wh-movement) cannot proceed through the left edge of the Spell-out domain. As a result, the object is unable to move into a higher Spell-out domain without creating an ordering contradiction unless the verb moves out to a higher position to the left of the object as well, thus ensuring that the ordering statements in the lower VP and the higher CP Spell-out domains will be identical for the purposes of linearization at the interface with phonology. With this background in mind, let us return to the properties of Ukrainian OS.

OS in Ukrainian is certainly a phenomenon that can be directly compared to the Scandinavian OS: in both cases it is a semantically loaded operation, with the phrase that has undergone OS necessarily being interpreted as specific (see esp. Diesing 1996 on the semantic properties of the Scandinavian OS). Furthermore, as argued in Antonyuk-Yudina & Mykhaylyk (2013) on the basis of an experimental investigation, while OS in Ukrainian is generally taken to be an optional movement operation, there is in fact no true optionality with OS since in contexts where OS is expected (given the contextually determined semantic interpretation of the object), but does not apply, prosodic recontouring necessarily takes place, signaling that the *in-situ* object phrase must be interpreted as specific.[10] It is well-known that the Scandinavian OS is not really optional either (Diesing 1996): in those contexts where it is not prohibited, OS must apply. Finally, as far as differences are concerned, the one and crucial distinction concerns conditions on movement: Scandinavian OS is famously constrained by *Holmberg's Generalization*. In Ukrainian, on the other hand, OS is not dependent on verb movement. The crucial prerequisite for OS of a lower object across a higher one, however, is that it be preceded by AI, which permutes the relative order of the two objects, as schematized in (19) for (17b''), repeated below:

(19) a. Myhajlo   [v jakyjs' bak] [kožen vyd pal'noho]   dviči zalyv.

   Michael   [in some tank]PP [every type gas]ACC   twice filled

   b. [vP   OPP   OACC [vP twice [vP v+V [VP2 ~~OPP~~ [VP2 ~~OACC~~ ~~V~~ [VP1 ~~V~~ ~~OPP~~]]]]]]

AI is also a semantically loaded operation. As is obvious from the pairs of sentences in (17a-b) and (18b-a), overtly raising the lower QP2 object across the higher QP1 results in

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[10] This conclusion is thus consonant with the view on the Economy problem (inherent in early Minimalism) advanced in Bošković (2013), according to which in cases involving seemingly optional instances of movement *not* everything is equal in the movement and non-movement counterparts (and therefore the Optionality problem is merely apparent).

surface scope freezing, with the (now) higher QP2 necessarily taking wide scope with respect to the now lower QP1. Thus, we must conclude, following standard assumptions regarding computation of QP scope, that this instance of AI brings the structurally lower QP2 to a position not only linearly preceding the previously higher QP1, but also one in which the overtly raised QP2 c-commands everything in its scope. We suggest that a likely *motivation* for AI is the need to move through the left edge of the VP if moving the lower, structurally most embedded argument of the verb into a higher Spell-out domain is to happen in a way that conforms with the Linearization requirements. Note that, just as in Fox & Pesetsky (2005), there is no need to invoke the notion of an escape hatch for our data: the AI step brings the lowermost argument to the left edge of VP, resulting in the following ordering statement:

(20)   QP2 < QP1

         QP2 < V

         QP1 < V

Following Fox & Pesetsky (2005), we take vP to <u>not</u> constitute a Spell-out domain, thus accounting for the fact that the verb undergoes overt head movement to adjoin to little v and actually appearing to the left of the object(s) in any given transitive or ditransitive sentence in which OS has not occurred. We assume that at the point at which the VP domain is spelled out, the lexical verb is preceded by either the direct object only or both objects, if AI has brought the structurally lower object to the left edge of VP.

Whenever it is the structurally higher of the two internal arguments that undergoes OS first, no AI step will be required since the object is already the leftmost element in the VP, which is the first Spell-out domain that provides the basis of evaluation for the following Spell-out domain(s) in terms of the linearization requirements it imposes. Thus, the ordering statements produced at the Spell-out of VP before the structurally higher QP object shifts into the higher Spell-out domain, will be the following (21):

(21) QP1 < V

  V < QP2

  QP1<QP2

Several important observations need to be made at this point. First, while the account of Ukrainian OS in terms of Fox & Pesetsky's (2005) Cyclic Linearization theory is fully compatible with our earlier observation that OS (unlike QR) is in fact a Superiority-obeying operation, it becomes redundant, with the "Superiority-obeying" nature of OS following entirely from the fact that phonologically overt material of each successive Spell-out domain is required to linearize in a way that replicates the ordering statement produced at the Spell-out of the lowest/initial VP domain. Furthermore, the apparently Superiority-non-conforming nature of QR also follows naturally from Cyclic Linearization: since the phonological component cares only about the phonologically overt material, covert syntactic movement QR will be free to change the relative order of QPs in the covert component in any way necessary so long as it does not violate any constraints on syntactic movement.

Finally, we are now in a position to account for the empirical generalization that OS in Ukrainian preserves scope relations that were established before its application. If we are correct in concluding that it is an instance of VP-internal AI that causes QP scope to "freeze", with subsequent operations apparently unable to disrupt this relation, on the Cyclic Linearization account it is actually expected that OS will not be able to affect scope. Any sentence conforming to (21) will be scopally ambiguous, and, *ceteris paribus*, will continue to be ambiguous since covert QR will be able to continue to apply. This account predicts that any true scope freezing (of the type initially described in Schneider-Zioga 1988 for the *Spray-Load* Alternation and Larson 1990 for the Double Object Construction) will only be confined to "first-phase syntax", that is, holding between elements of the first Spell-out domain.

6 Conclusions

In this Remark, we have presented data from Ukrainian ditransitive argument alternations, exemplified by the *Spray-Load* predicates, which pose significant problems for the Superiority account of scope freezing (Bruening 2001). We have shown that object-shifting the structurally lower argument phrase to a preverbal position in which it is interpreted as specific is preceded in Ukrainian by Argument Inversion, which brings the lower QP to a higher c-commanding position at the left edge of VP from which it undergoes OS, hypothesizing that this step is necessitated by the Linearization requirements imposed on syntax by the phonological component (following Fox & Pesetsky 2005). The availability of Argument Inversion in Ukrainian provides a way for the structurally lower QP to raise out of VP and undergo OS.

The data from Ukrainian present a clear generalization that whatever scope interpretations are available in the post-verbal field will carry over to the pre-verbal field, with OS being unable to either induce scope freezing or disrupt the scope freezing relation established before OS has applied, thus falsifying the Superiority account of scope freezing and, at the same time, providing additional support for the view that wide scope and Specificity are separate phenomena that should not be conflated (Enç 1991).

Further, while conceding that OS, unlike QR, is not after all feature-driven would at first glance appear to present a solution for the Superiority account by making these data irrelevant, a careful look at the data suggests that this step would not be empirically justified, since Ukrainian OS *is* in fact a Superiority-obeying instance of movement, while QR, on the other hand, is simply not regulated by Superiority.

We argue that pursuing the Cyclic Linearization account of Fox & Pesetsky presents a simple and straightforward way of accounting for all the data patterns and interactions observed. The proposed account has the additional benefit of being sufficiently general, with the differences between Ukrainian and Scandinavian OS boiling down to the fact that leftward movement of the lowermost object that proceeds through the left edge of VP is

permitted in Ukrainian while this step is apparently unavailable in the Scandinavian languages, as originally hypothesized in Fox and Pesetsky (2005).

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